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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/750,051	12/29/2000	Shogo Fujimori	1614.1109	7012

21171 7590 08/10/2005

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EXAMINER	
CRAIG, DWIN M	
ART UNIT	**PAPER NUMBER**
2123	

DATE MAILED: 08/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/750,051	FUJIMORI ET AL.	
	Examiner	Art Unit	
	Dwin M. Craig	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 27 May 2005.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-22 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-3,7,8,10-12,16,17 and 19-22 is/are rejected.

7)☒ Claim(s) 4, 5, 6, 9, 13-15 and 18 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. In view of the Appeal Brief filed on 5-27-2005, PROSECUTION IS HEREBY REOPENED. New grounds of rejection are-set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

It is noted by the Examiner that under the recent rules changes, the Applicant will not be required to pay a fee to re-submit an Appeal Brief.

The Examiner respectfully points out to the following excerpt from the Federal Register/Vol. 69, No. 155/Thursday, August 12, 23004/Rules and Regulations;

Comment 44: Two comments state that the proposed rules are unclear as to subsequent appeal procedures after prosecution is reopened subsequent to the filing of a first Notice of Appeal and Appeal Brief. Specifically, the comments question if prosecution is reopened under either § 41.39(b)(1), § 41.50(a)(2)(i) or § 41.50(b)(1), and a subsequent appeal is taken, would applicant be required to again pay the Notice of Appeal and Appeal Brief fees. The comments believe that this extra cost is unfair and burdensome to applicants because the reopening of prosecution would be the *result of action by the examiner* or the Board, not action by applicants. Accordingly, the comments suggest that provision should be made in the proposed rules that applicants need not twice pay the Notice of Appeal and Appeal Brief Fees in an application where those fees have already been paid but prosecution was then reopened.

Answer: The comment will not be adopted. The rule making did not propose to change the current procedures in this area. Currently, once a Notice of Appeal and Appeal Brief fee has been paid in a proceeding, a second Notice of Appeal and Appeal Brief fee will not be required except if a final Board decision has been made on the first appeal. *For example, in an application for patent, a Notice of Appeal and Appeal Brief fees have been paid and the examiner reopens prosecution in a new Office action, new fees are **not** required for an applicant to appeal from that new Office action.* Another example is in an application for patent, a Notice of Appeal and Appeal Brief fees have been paid and the Board in its decision makes a new ground of rejection and the applicant elects to reopen prosecution before the examiner, then new fees are required for an applicant to appeal from any new Office action by the examiner. The same procedures apply under the rules as implemented in this rule making.

2. Dwin Craig is now the Examiner of record for this case; Eduardo Garcia-Otero is no longer the Examiner of record.

Response to Arguments

3. Applicants' arguments presented in the 5-27-2005 Appeal Brief have been fully considered. The Examiner's response is as follows.

3.1 Regarding the Applicants' arguments concerning the *Tsuchida* reference on page 4 of the Appeal Brief, Applicant argued, *"Tsuchida does not teach how noise reduction components are characterized, figure 5."* The Examiner notes that the Applicants' are arguing specific language that is different from the actual claim language in claims 1, 10 and 19. The *Tsuchida* reference is not required to teach how noise reduction components are characterized in order to anticipate the claim language in independent claims 1, 10 and 19. It is also noted that the *Tsuchida* reference does disclose how noise reduction components are characterized, *see Figure 1 item 2103,* it is inherent that the *Tsuchida* reference teaches characterizing a noise reduction component, otherwise the component could not be added to the circuit layout simulation.

3.2 However, the Examiner acknowledges that the *Tsuchida* reference does not expressly disclose the use of at least *one formula,* to model the noise signals being used to subject the *at least one net of a target circuit* to noise analysis. For this reason the Examiner withdraws the earlier rejections to the claims.

3.3 As regards the previous 35 USC 112-second paragraph rejection of claim2, the Examiner has found Applicants' arguments in the 5-27-2005 responses to be persuasive and withdraws the earlier rejections of dependent claim 2.

3.4 An updated search has revealed new art.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Independent claims 1, 10 and 19 are rejected under 35 USC 102(b) as being anticipated by US Patent 5,682,336 Chian et al.

4.1 Regarding independent claims 1, 10 and 19 and using independent claim 1 as an example, the *Chian et al.* reference discloses, *calculating recommended circuit information considered to minimize a noise by use of at least one formula* (Figure 2 and Figure 5 specifically item 52 and in regards to using a formula, Col. 4 line 55 "by means of a respective third order polynomial..." and Col. 5 line 25 "each noise source is simulated as a Gaussian sequence of random amplitude noise signal values, interconnected by a continuous waveform, comprised of successive third order polynomials..."),*based on input circuit information amounting to at least one net of a target circuit which is to be subjected to a noise analysis;* (Figure 2 discloses a net being the target of noise analysis), *comparing the input circuit information and the recommended circuit information, and determining a differing portion of the recommended circuit information differing from the input circuit information, as noise countermeasures.* (Figure 5 item 55 "Modify Circuit Design" and Col. 5 line 38, "The analyzed circuit is selectively modified depending upon the noise performance output).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 2, 3, 11, 12, 20, 21 and 22 are rejected under 35 USC § 103 (a) as being unpatentable over US Patent 5,682,336 Chian et al. in view of Tsuchida US Patent 5,559,997.

5.1 As regards independent claims 1 and 10 see section 4 of this Office Action.

5.2 As regards dependent claims 2 and 11 and using dependent claim 2 as an example, the *Chian et al.* reference discloses, *creating a simulation circuit model of the input circuit information* (Figure 1 and 2) and *carrying out a circuit simulation using the simulated model* (Title and Figure 5 item 52).

However, the *Chian et al.* reference does not expressly disclose *check whether or not a noise exceeded a tolerable range* or *optimizing the determined noise countermeasures to only portions related to the noise*.

The *Tsuchida* reference discloses *check whether or not a noise exceeded a tolerable range* (Figures 7a-7c, 8a-8d and col. 16 line 42 "allowable range...7V...5V..."), *optimizing the determined noise countermeasures to only portions related to the noise* (Col. 16 line 42, "then the terminal resistance 70 to 80Ω").

5.3 As regards dependent claims 3 and 12 the *Chain et al.* reference does not expressly disclose the use of using a damping resistance.

The *Tsuchida* reference discloses the use of a *damping resistance* (Col. 19 line 14, "an output of a clock line is provided with a damping resistance (serial resistance)") *based on a minimum voltage VIH-1 and a maximum voltage VIH-2 which guarantee a normal operation of a target circuit* (Figures 8a-8d and Col. 16 line 54, "The evaluation unit **131** compares the recognized rated value with the range of the rated value stored in the table, thereby fairly evaluating the electric characteristics of the evaluation target if the rated value is in range." And Col. 16 line 48, "when a signal line is connected to an input pin of a component which might be broken if the signal level inputted is over 7V, and when the signal to be inputted is 5V, then the terminal resistance to be provided is made 70 to 80Ω.").

5.4 As regards dependent claims 20, 21 and 22 which are directed towards rules checking. The *Chain et al.* reference does not expressly disclose "rules checking."

The *Tsuchida* reference discloses rules checking, (Figure 11 items S1302, S1303, 107, Col. 2 lines 58-62, Col. 14 lines 50-64).

5.5 As regards the motivation to combine the *Chian et al.* reference with the *Tsuchida* reference, it would have been obvious, to one of ordinary skill in the art, at the time the invention was made to have used the teachings of the *Tsuchida* reference to terminate a high frequency

digital circuit trace(s) using the methods of simulation and testing with different resistance values on a circuit trace because, this is a known in the art method of terminating a transmission line and for a design team to manually check a circuit board, to much time and cost would be wasted (*Tsuchida et al.* Col. 2 lines 20-28).

6. Claims 7, 8, 16 and 17 are rejected under 35 USC § 103 (a) as being unpatentable over US Patent 5,682,336 Chian et al. in view of US Patent 5,555,506 Petschauer et al.

6.1 As regards independent claims 1 and 10 see section 4 in this Office Action.

6.2 As regards dependent claims 7, 8, 16 and 17 the *Chian et al.* reference does not expressly disclose victim nets or aggressor nets.

The *Petschauer et al.* reference discloses victim nets and aggressor nets used in noise analysis of circuits (Figures 6-14 and Abstract and Summary of the invention).

6.3 It would have been obvious, to one of ordinary skill in the art, at the time the invention was made to have combined the teachings of the *Chian et al.* reference with the noise reduction methods of the reduced the time required to perform the simulation *Petschauer et al.* reference (Col. 2 lines 47-56).

Allowable Subject Matter

7. Claims 4, 5, 6, 9, 13, 14, 15 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7.1 The following is an Examiner's Reasons for Allowance,

7.2 As regards dependent claims 4, 13 and 15, the following limitations, in combination with other limitations are neither anticipated nor made obvious by the prior art, *"comparing a*

damping resistance which makes a voltage at a time of a ring back equal to the minimum voltage VIH-1 and the minimum value of damping resistance", the Examiner notes that although this measurement of *ring-back* is known in the art, Applicants' combination is not obvious.

7.3 As regards dependent claims 5, 6, and 14 the following limitations in combination with other limitations are neither anticipated nor made obvious by the prior art, *"further comprising outputting input circuit information that includes a wiring length that is substantially a Manhattan distance that is determined based on position of part pins forming the target circuit and a wiring topology"*. The Exmainer notes that while *Manhattan distance* is known in the art, Applicants' combination is not obvious.

7.4 As regards dependent claims 9 and 18 the following limitations, in combination with other limitations are neither anticipated nor made obvious over the prior art, *"carrying out a circuit simulation using the simulation model are repeated while changing the pattern gap, so as to obtain a minimum pattern gap with which the noise obtained as a result of the noise check carried out in said carrying out a circuit simulation using a simulation model"*.

Conclusion

8. Claims 1-3, 7, 8, 10, 11, 12, 16, 17, 19-22 are rejected. Claims 4, 5, 6, 9, 13, 15 and 18 are objected to.

8.1 This Office Action is Non-Final.

8.2 Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dwin M. Craig whose telephone number is (571) 272-3710. The examiner can normally be reached on 10:00 - 6:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo P. Picard can be reached on (571) 272-3749. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DMC

Paul L. Rodriguez 8/8/05
Primary Examiner
Art Unit 2125